3rd Grade Math Curriculum

Board Approved: March 21, 2024

Course Information

Course Description:
In Grade 3, instructional time focuses on five areas: (1) expanding their understanding of base-ten numbers, addition, and subtractions; (2) developing understanding of multiplication and division and strategies for multiplication and division within 100; (3) developing understanding of fractions, especially unit fractions (fractions with numerator 1); (4) developing understanding of the structure of rectangular arrays and of area and describing and analyzing shapes; and (5) solving problems involving measurement and data, including the use of graphs.

Transfer Goals:

- Apply mathematics to problems arising in everyday life, society, and the workplace using a problem solving model that incorporates analyzing information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution.
- Select tools as appropriate, including real objects, manipulatives, paper/pencil, and technology to solve problems.
- Select techniques as appropriate, including mental math, estimation, and number sense, to solve problems.
- Organize, record, and communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.
- Analyze mathematical patterns and relationships to connect and communicate mathematical ideas.
- Display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

Curriculum Standards: Missouri Learning Standards for Mathematics, Grade 3

Curriculum Resource(s): *enVisionMATH Realize Edition © 2015, Savvas Education*

Priority standards indicated in **bold*

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Unit 1: Number Sense and Operations in Base Ten

Timeframe: ***See current resource scope and sequence***

Unit Description: This unit extends students' understanding of the base ten number system (including reading, writing, comparing, and ordering numbers), addition, and subtraction and begins to develop an understanding of multiplication. Students will:

- Use place value understanding to round whole numbers to the nearest 10 and 100.
- Read, write, and identify whole numbers within 100,000 using base-ten numerals, number names, and expanded form.
- Use strategies based on place value and properties of operations to add and subtract multi-digit numbers.
- Use strategies based on place value and properties of operations to multiply one-digit whole numbers.

Enduring Understandings:

- Place value organization can help add and subtract large numbers.
- Addition is adding on to a group, combining groups, or joining parts to make a whole.
- Subtraction is separating parts from a whole, finding a missing part, or comparing two quantities.
- Addition and subtraction are inverse operations and can be used together to solve problems and check answers.
- There are many ways to solve addition and subtraction problems. Some are more efficient than others.
- An equation is a math sentence that has two equal sides separated by an equal sign.
- The equal sign is a math symbol that means "the same value as"; each side of the equal sign should show the same amount.
- Answers to problems should always be checked for reasonableness, and this can be done in different ways.
- Estimating helps add and subtract numbers quickly when precision is not important.
- Estimating can help quickly justify whether an answer is reasonable.
- There is more than one way to estimate

Essential Questions:

- What tools and models can I use to help me understand place value and compare numbers?
- How does the organization of large numbers help people add and subtract?
- How can models help me when adding, subtracting, or multiplying?
- How can I use equations to represent what is happening in a math problem?
- What efficient strategies can I use for adding and subtracting larger numbers?
- What efficient strategies can I use for multiplying numbers?
- How can I check whether an answer is reasonable?

a sum or difference. Two ways to estimate are rounding and using compatible numbers. ● Rounding is a process for finding multiples of 10 and 100 that are closest to a given number. ● Basic multiplication facts and properties of multiplication can be used to find products when one factor is a multiple of 10.	

Unit 1 Standards	
STANDARD CODE	**STUDENTS WILL KNOW, BE ABLE TO, AND UNDERSTAND:**
3.NBT.A.1	● I can round one to three digit whole numbers to the nearest ten. ● I can round two to four digit whole numbers to the nearest one hundred.
3.NBT.A.2	● **I can write and identify numbers within and including one hundred thousand in base ten numerals (standard form) from number names (word form).** ● **I can write and identify numbers within and including one hundred thousand in base ten numerals (standard form) from expanded form.** ● **I can write and identify numbers within and including one hundred thousand in number names (word form) from base ten numerals (standard form).** ● **I can write and identify numbers within and including one hundred thousand in number names (word form) from expanded form.** ● **I can identify numbers within and including one hundred thousand in expanded form from base ten numerals (standard form).** ● **I can identify numbers within and including one hundred thousand in expanded form from number names (word form).** ● **I can convert between number names (word form), base ten numerals (standard form) and expanded form in numbers up to one hundred thousand.**
3.NBT.A.3	● I can use multiple representations to model real-world and mathematical problems involving addition and subtraction within one thousand. ● I can respectfully critique the reasoning of others, identifying errors and alternate approaches to solving problems involving addition and subtraction within one thousand. ● I can represent a situation using symbols and find solutions to explain my reasoning in addition and subtraction problems within one thousand. ● I can make meaning of the symbols in a problem to find solutions and

	explain my reasoning in addition and subtraction problems within one thousand. ● I can identify and explain patterns and the structure of the problems with specific focus on the properties of mathematics when solving problems involving addition and subtraction within one thousand. ● I can communicate my reasoning precisely to problems involving addition and subtraction within one thousand.
3.NBT.A.4	● I can find the product of a one-digit whole number with a multiple of ten using strategies based on place value. ● I can use alternative strategies for computing a one-digit whole number with a multiple of ten using properties of operations.

Unit 2: Relationships and Algebraic Thinking

Timeframe: ***See current resource scope and sequence***

Unit Description: This unit builds an understanding of problem situations for multiplication and division. Students expand their understanding, skill, and ability to apply multiplication and division to problem situations, including two-step problems. Students will:

- Represent and solve problems involving multiplication and division.
- Understand properties of multiplication and the relationship between multiplication and division.
- Multiply and divide within 100.
- Identify and explain arithmetic patterns.

Enduring Understandings:

- Multiplication can represent combining equal groups, arrays, and area models.
- An array shows items arranged in rows and columns, which shows equal groups; equations using multiplication or repeated addition can be written to find the total number of objects in an array.
- Area models can help solve and justify multiplication problems and equations.
- Multiplication has properties that can help solve problems and remember facts.
- Division is the separating of a total into equal and smaller parts.
- Division and multiplication are inverse operations and can be used together to solve problems.
- In many real-world problems, more than one operation must be used to find the final answer.
- Number patterns can be used to solve new problems using math facts I already know.

Essential Questions:

- How can I use what I know about similar problems to help me be a more efficient problem solver?
- What kind of problems can multiplication solve?
- How is multiplication similar and different to other operations?
- What kind of problems can division solve?
- How is division similar and different to other operations?
- How can I check whether an answer is reasonable?
- How can math models and equations be used to solve real world problems?

Unit 2 Standards

STANDARD CODE	STUDENTS WILL KNOW, BE ABLE TO, AND UNDERSTAND:
3.RA.A.1	• I can identify the repeated addition expression which correctly represents the product of a given multiplication fact.

	● I can identify the picture which correctly represents the product of a given multiplication fact. ● I can write or choose the multiplication expression that represents "____equal groups of_____". ● I can identify the arrays which correctly represent the product of a given multiplication fact.
3.RA.A.2	● I can identify the repeated subtraction expression which correctly represents the quotient of a given division fact. ● I can identify the picture which correctly represents the quotient of a given division fact. ● I can explain the quotient as a number of groups in a given division problem. ● I can explain the quotient as the number/amount in each group in a given division problem.
3.RA.A.3	● I can use words or pictures to solve and explain my solution to a given multiplication situation. ● I can use words or pictures to solve and explain my solution to a given division situation
3.RA.A.4	● I can solve single digit multiplication problems and problems involving multiples of ten. ● I can solve a multiplication word problem. ● I can solve division problems with single digit divisors or divisors that are a multiple of ten. ● I can solve a division word problem.
3.RA.A.5	● I can determine the unknown number in a multiplication equation relating three whole numbers (fact families/ number bonds). ● I can determine the unknown number in a division equation relating three whole numbers (fact families/number bonds).
3.RA.B.6	● I can identify an expression that is equivalent to a given expression using the commutative property. ● I can identify an expression that is equivalent to a given expression using the associative property. ● I can identify an expression that is equivalent to a given expression using the distributive property.
3.RA.C.7	● **I can identify related multiplication equations that are the inverse of a given division equation.** ● **I can identify related division equations that are the inverse of a given multiplication equation.** ● **I can find the product of two numbers up to 10x10.**
3.RA.C.8	● I can use multiple representations to model real-world and mathematical problems involving products within one hundred. ● I can respectfully critique the reasoning of others, identifying errors and

	alternate approaches to solving problems involving products within one hundred. ● I can represent a situation using symbols and find solutions to explain my reasoning in multiplication problems within one hundred. ● I can make meaning of the symbols in a problem to find solutions and explain my reasoning in multiplication problems within one hundred. ● I can identify and explain patterns and the structure of the problems with specific focus on the properties of mathematics when solving problems involving products within one hundred. ● I can communicate my reasoning precisely to problems involving products within one hundred.
3.RA.D.9	● **I can identify the correct equation using a variable for the unknown quantity that may be used to solve a given two-step word problem.** ● **I can identify a two-step word problem that matches a given equation, which uses a variable for the unknown quantity.** ● **I can solve a two-step word problem by creating an equation to solve for the unknown quantity.**
3.RA.D.10	● I can recognize a strategy that can be used to determine the reasonableness of a solution to a word problem. ● I can identify the errors in a given strategy that has been used to solve a given problem.
3.RA.E.11	● **I can identify the type of change shown in a sequence of given numbers.** ● **I can identify the rule of a given input/output table.** ● **I can complete a pattern with missing numbers.** ● **I can recognize other features of a given set of numbers beyond the amount of change.**

Unit 3: Number Sense and Operations in Fractions

Timeframe: ***See current resource scope and sequence***

Unit Description: Students develop an understanding of fractions, beginning with unit fractions. Students will:

- Develop an understanding of fractions as numbers.
- View fractions in general as being built out of unit fractions.
- Use fractions along with visual fraction models to represent parts of a whole.
- Understand that the size of a fractional part is relative to the size of the whole. (For example, ½ of a small cookie could be less than ⅓ of a larger cookie, but ⅓ of a ribbon is longer than ¼ of the same ribbon because when the ribbon is divided into 3 parts, the parts are longer than when it is divided into 4 parts.)
- Solve problems that involve comparing fractions by using visual models and strategies based on noticing equal numerators or denominators.

Enduring Understandings:

- A fraction is a part of a whole number, and a way to split up a number into equal parts.
- Fractions are written as 2 numbers, above one another, separated by a line. The bottom number indicates the number of parts in the whole, and is called the denominator. The top number indicates the number of equal parts being counted, and is called the numerator.
- A unit fraction represents one part of a whole that has been divided into equal parts.
- Any whole number can also be written as a fraction.
- Fractions (smaller than and greater than 1) can be shown on a number line, divided into equal parts.
- Fractions are real numbers that can be found in between whole numbers on the number line.
- On a number line, the denominator in a fraction represents the number of equal parts between 0 and 1, and the numerator represents the number of parts between 0 and the point.
- The larger the denominator, the smaller the unit fraction because the whole must be divided into smaller pieces.

Essential Questions:

- How can I show fractions in models and symbols?
- How can I describe the similarities and differences between fractions and whole numbers?
- What are the parts of a fraction?
- What happens to the size of fractions when I change the numerator or denominator?
- How can I compare and order fractions?
- How can I determine if fractions are equivalent?

• Benchmark numbers such as 0, ½, and 1 can be used to compare fractions. • Fraction models or fractions on a number line can help when comparing fractions. • If two fractions have the same denominator, the fraction with the greater numerator is the greater fraction. • If two fractions have the same numerator, the fraction with the smaller denominator is the greater fraction. • Many different fractions can name the same amount or same place on the number line. • The same fractional amount can be represented by an infinite set of different but equivalent fractions. • There are a limitless number of fraction names for each point on the number line. These points can be used to name equivalent fractions.	

Unit 3 Standards	
STANDARD CODE	**STUDENTS WILL KNOW, BE ABLE TO, AND UNDERSTAND:**
3.NF.A.1	• I can identify the name of the unit fraction of a whole when that whole is divided into two, three, four, six, or eight equal parts.
3.NF.A.2	• **I can identify the fraction indicated by a whole that has been divided into equal parts (e.g. a pan of brownies is the whole, cut into nine equal pieces would be the equal parts of the whole).** • **I can describe the numerator as representing the number of pieces being considered.** • **I can shade the parts of a whole represented by a given fraction.** • **I can identify the fraction of which the whole was divided into equal parts.** • **I can describe the denominator as the number of pieces that make up the whole.** • **I can choose a picture that has been divided into equal parts based on the given denominator.**
3.NF.A.3	• I can identify the interval from zero to one on a number line as one whole unit. • I can recognize the fraction represents the distance from zero on a number line.

	● I can identify a number line that has been divided into equal parts. ● I can explain that the parts of the whole must be equal in order to represent fractional parts. ● I can name fractions shown on an unlabeled partitioned number line based on their relationship to zero. ● I can label or identify fractions on a number line greater than zero but less than one. ● I can label or identify the fractional point as a mixed number on a given number line beyond one whole unit. ● I can label or identify the fractional point as an improper fraction on a given number line beyond one whole unit.
3.NF.A.4	● I can use visual models to demonstrate that two fractions are equivalent if they are the same size. ● I can use number lines to demonstrate that two fractions are equivalent if they are the same distance from zero.
3.NF.A.5	● I can use visual models to determine if fractions with like denominators are equivalent. ● I can use visual models to determine if fractions with unlike denominators are equivalent. ● I can use visual models to generate equivalent fractions with unlike denominators. ● I can explain why fractions with unlike denominators are equivalent or not.
3.NF.A.6	● **I can compare two fractions with the same numerator using >, = or <.** ● **I can compare two fractions with the same denominator using >, = or <.** ● **I can use visual models including number lines to illustrate why two fractions with the same numerator are >, = or < each other.** ● **I can use visual models including number lines to illustrate why two fractions with the same denominator are >, = or < each other.**
3.NF.A.7	● I can demonstrate with words or visual models that fraction comparisons are only valid when the two fractions refer to the same sized whole.

Unit 4: Geometry and Measurement

Timeframe: ***See current resource scope and sequence***

Unit Description: Students describe, analyze, and compare properties of 2-dimensional shapes. They recognize area as an attribute of 2-dimensional regions and solve problems involving measurement. Students will:

- Reason with shapes and their attributes.
- Solve problems involving the measurement of time, liquid volumes, and weights of objects.
- Understand concepts of area.
- Understand concepts of perimeter.

Enduring Understandings:

GEOMETRY

- Shapes have specific attributes, such as angles, sides, and faces, that can be used to categorize them.
- A quadrilateral is a polygon with 4 sides and 4 vertices. Quadrilaterals can be described and classified by their sides and angles.
- Shapes can be included in many different groups depending on their attributes.
- I can break a shape into parts with equal areas by understanding that each part is a fraction of the area of the whole shape. The number of equal parts is the denominator of the fraction.

MEASUREMENT- TIME, VOLUME, & WEIGHT

- Time can be represented by an analog or digital clock.
- Time intervals can be added or subtracted to solve problems.
- Elapsed time can be found by finding the total amount of time that has passed between a starting time and an ending time.
- Weight and volume are attributes of objects that can be measured.
- Different units are used to measure objects depending on the objects size and the precision needed.
- Liquid volume is a measure of the amount of liquid a container can hold.
- Common objects can be used to estimate the weight and volume of other objects.

Essential Questions:

GEOMETRY

- How do I describe, categorize, and compare shapes?
- What is a quadrilateral?
- How can I describe, categorize, and compare different types of quadrilaterals?
- How can I break shapes into equal areas?

MEASUREMENT- TIME, VOLUME, & WEIGHT

- How can I write time in different ways?
- How can I show time on an analog and digital clock?
- How can I solve problems about telling time?
- How can I calculate how much time has passed?
- What units can I use to estimate and measure weight?
- What units can I use to estimate and measure liquid volume?

MEASUREMENT- LENGTH, AREA, & PERIMETER

- How do I choose the appropriate tool and unit for measuring length?
- How can I measure the area of a rectangle?
- How can I measure the area of irregular figures?
- How does area connect to multiplication and addition?
- How can I measure the perimeter of

MEASUREMENT- LENGTH, AREA, & PERIMETER ● Length can be measured in the standard system with inches, feet, yards, and miles and in the metric system with centimeters, meters, and kilometers. ● The amount of space inside a region is its area, and area can be found by counting unit squares or by multiplying the side lengths. ● Area can be calculated using multiplication properties. ● The areas of rectangles can be used to model the Distributive Property. ● The area of some irregular shapes can be found by dividing the original shape into rectangles, finding the area of each rectangle, and adding all of the areas. ● The distance around a figure is its perimeter. ● Polygons with the same perimeter may have different areas. ● Polygons with the same area may have different perimeters.	polygons? ● How can I measure the perimeter of irregular figures?

Unit 4 Standards	
STANDARD CODE	**STUDENTS WILL KNOW, BE ABLE TO, AND UNDERSTAND:**
3.GM.A.1	● I can identify common attributes of a set of given shapes. ● I can identify contrasting attributes of a set of given shapes.
3.GM.A.2	● I can classify rhombuses and rectangles, including squares, as quadrilaterals. ● I can identify examples of quadrilaterals that are not examples of rhombuses and rectangles.
3.GM.A.3	● I can partition (divide) a given shape into equal areas. ● I can name the unit fraction of a shape that has been partitioned into equal areas.
3.GM.B.4	● I can write the time that is shown on an analog clock to the nearest minute. ● I can move the hands of an analog clock to show a given time to the nearest minute. ● I can choose the clock that displays a given time.

3.GM.B.5	• I can give an approximate elapsed time given a start time and an end time at least one or both of these times must be shown on an analog clock. • I can choose an appropriate elapsed time interval given a particular situation.
3.GM.B.6	• I can solve one-step word problems involving addition of minutes to solve time problems. • I can solve one-step word problems involving subtraction of minutes to solve time problems.
3.GM.B.7	• **I can choose the appropriate tool for measuring length.** • **I can choose the appropriate tool for measuring liquid volume.** • **I can choose the appropriate tool for measuring weight.** • **I can choose a reasonable unit of length given an object.** • **I can choose a reasonable unit of liquid volume.** • **I can choose a reasonable unit of weight.** • **I can determine the measurement of the length of a picture of an object to the nearest centimeter or quarter inch.** • **I can determine the measurement to the nearest milliliter given a picture of liquid in a marked container.** • **When given a picture of an object on a scale, I can determine the weight to the nearest pound, ounce, gram or kilogram.**
3.GM.B.8	• I can use the four operations to solve one-step problems involving lengths. • I can use the four operations to solve one-step problems involving liquid volume. • I can use the four operations to solve one step problems involving weight.
3.GM.C.9	• I can calculate the area of squares and rectangles. • I can calculate the area of irregular shaped figures composed of squares and rectangles.
3.GM.C.10	• I can label area measurement as squared units.
3.GM.C.11	• I can identify the tiled rectangle that goes with a given multiplication problem. • I can identify the multiplication problem that goes with a given tiled rectangle.
3.GM.DC12	• **I can use multiplication to find the area of a rectangle or square that does not have the grid lines or tiled units shown.** • **I can find the area of a rectangle within a given word problem.**
3.GM.C.13	• I can determine dimensions for a given rectangular area. • I can determine multiple dimensions for a given rectangular area.
3.GM.C.14	• I can partition a rectangle into smaller rectangles, find their areas and combine those amounts to determine the area of the original rectangle.

3.GM.D.15	● **I can find the perimeter of a polygon given all the side lengths.** ● **I can find the measurement of a missing side of a polygon given the perimeter in all but one of the side lengths.**
3.GM.D.16	● I can compare two rectangles with the same area and different side dimensions (different perimeters). ● I can compare two rectangles with the same perimeter and different areas.

Unit 5: Data and Statistics

Timeframe: ***See current resource scope and sequence***

Unit Description: Students experience activities to help them formulate and answer questions using data.
Students will:

- Create frequency tables, scaled picture graphs, and bar graphs to represent a data set with several categories.
- Solve one- and two-step word problems using information presented in bar and/or picture graphs.
- Create line plots to represent data.
- Use data shown in a line plot to answer questions.

Enduring Understandings:

- Graphs have features that help people interpret information and can be used to help see data in different ways to answer questions and solve problems.
- A picture graph uses pictures to show data. Each picture on a picture graph represents the same set quantity throughout a graph.
- A bar graph uses bars to compare information. Bars on bar graphs can be shown vertically (up and down) or horizontally (across).
- A line plot (sometimes called a dot plot) uses marks over positions on a number line to show the number of times that each value or result occurs.

Essential Questions:

- How can graphs help me talk about numbers to solve problems?
- Why are graph features important when I am presenting results?
- Why does scale matter when I am creating a graph?
- How can I show data in a picture graph?
- How can I show data in a bar graph?
- How can I show data in a line plot?

Unit 5 Standards

STANDARD CODE	STUDENTS WILL KNOW, BE ABLE TO, AND UNDERSTAND:
3.DS.A.1	• **I can use given data to complete a frequency table with several categories.** • **I can use given data to complete a scaled picture graph with several categories.** • **I can use given data to complete a scaled bar graph with several categories.**
3.DS.A.2	• I can solve one-step problems based on information found in a bar graph or a picture graph.

Priority standards indicated in* ***bold*

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	● I can solve two-step problems based on information found in a bar graph or a picture graph.
3.DS.A.3	● I can use a list of given data from a table to create a line plot.
3.DS.A.4	● I can answer questions about the data on a given line plot.